CONSERVATION ACTIONS TO BE IMPLEMENTED

Conservation measures needed for the continued existence of Virgin spinedace focus on two objectives: 1) to eliminate significant threats or reduce those that cannot be completely eliminated to the maximum extent possible, and 2) to stabilize, restore and enhance specific reaches of occupied and unoccupied historic habitat. The goal of these measures is to expand the range so that the species occupies at least 80% (approximately 181 km/112 mi) of its historically occupied habitat. Attainment of the goal and objectives of this strategy would be achieved by implementing the following management actions: 1) establish existing conditions as a baseline 2) re-establish population maintenance flows 3) enhance and maintain habitat 4) selectively control non-indigenous fish 5) maintain genetic viability; 6) monitor populations and habitat and 7) develop a mitigation plan and protocol for future activities.

Establish Existing Conditions As A Baseline

All management actions associated with the conservation of Virgin spinedace will be evaluated as to their effectiveness. In addition, any modification to the existing conditions upon which Virgin spinedace depend, will be evaluated as to their potential effect on the species. For these purposes, the existing conditions of historic habitat are considered to be this baseline. Three primary attributes will be used to describe existing conditions: 1) basin hydrology averaged over the last 20 years, 2) water rights and depletions, and 3) Virgin spinedace populations.

Re-establish Population Maintenance Flows

Existing flow patterns provide the habitat requirements of the Virgin spinedace in approximately 159 km (99 mi) of the species historic habitat (Table 1). These conditions are described by hydrographs in terms of flow quantity, timing, duration, and frequency. In approximately 91 km (57 mi) of historic habitat, stream channels are dry or flows are significantly depleted during the late-summer and early-fall period (Table 1).

Population maintenance flows will be re-established and maintained in approximately 39 km (24 mi) of de-watered historic habitat of the Virgin spinedace in order to reduce habitat fragmentation and to restore populations. These flows will be re-established based on determining the flow requirements of the species using an empirical approach by incorporating components of the conceptual framework outlined by Hill et al. (1991). This empirical approach incorporates current data on flow patterns that are currently maintaining self-sustaining populations in reaches of the Virgin River basin. The process of re-